

States of Matter

Check off the correct properties of solids, liquids and gases in the table below

	Shape			Volume		
	Definite	OR	Indefinite	Definite	OR	Indefinite
Solid	✓			✓		
Liquid			✓	✓		
Gas			✓			✓

How is plasma different from regular gas?

It is a super heated gas which ionizes (forms ions ex. He^+)

How is an amorphous solid different from a regular solid?

The arrangement of atoms is irregular unlike a regular solid where the arrangement of atoms is highly organized.

Temperature ($K = C + 273$ or $C = K - 273$)**A. Conversions**Convert 105°C to Kelvin 378 KConvert 365 K to Celsius 92°C **B. Comparisons**1. Which temperature is colder? 280 K or 16°C 2. Which temperature is hotter? 73°C or ~~337 K~~

3. Place the following boiling points in order from lowest to highest

Acetone (329K), Heptane (98°C), Benzene (80°C), Nitromethane (374K)

Acetone, Benzene, Heptane, Nitromethane
 329K 353K 371K 374K

Mass, Speed and Kinetic Energy

(Oxygen = 32g, Helium = 4g, Chlorine = 71g, Fluorine = 38g)

1. Which of the following particles would have a greater speed?

A. Oxygen at 300K

B. Helium at 300K

2. Which of the following particles would have the greater kinetic energy?

- ☒ A. Chlorine moving at 600m/s B. Fluorine moving at 600 m/s

3. Which particle is heavier?

- ☒ A. Particle A moving at 340 m/s at 400K B. Particle B moving at 500 m/s at 400K

Diffusion

Rank the diffusion rates of the following gases from fastest to slowest.

CO, N₂, H₂, CO₂, CH₄, Cl₂

H₂, CH₄, CO, N₂, CO₂, Cl₂
same rate

What property of the kinetic molecular theory describes why gases diffuse?

Constant random motion

Boiling points and Freezing Points

Examine the following Table and answer the questions

Substance	Freezing Point (°C)	Boiling Point (°C)
Bromine	-7	8
Mercury	-39	67
Propane	-188	-42
Radon	-71	-62
Silver	-961 219	219 961

Which of the following substances are liquids at -36°C?

Mercury

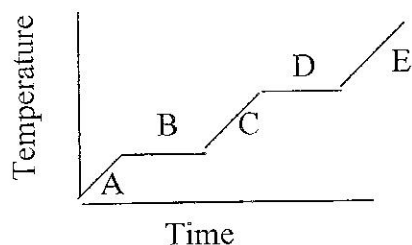
Which of the following substances are gases at 14°C?

Bromine, propane, Radon

Which substances are solids at -63°C?

Bromine, Mercury, Silver

Phase Changes



Which of the following letters represents the substance in the gaseous state?

E

Which of the following letters represents the freezing point of the substance?

B

Which of the following letters represents the boiling point of the liquid state?

D

Does this graph represent an endothermic or exothermic process?

Endothermic

Which has more kinetic energy, A or E?

E

What is the name of the process for when a solid is converted directly to a gas? *sublimation*

Look at the two diagrams below and answer the questions that follow.



Dish containing 5 ml of nail polish remover



Beaker containing 5 ml of nail polish remover

In which container will the nail polish remover evaporate faster? Why?

Dish — greater surface area.

What is the word that describes a substance that easily evaporates?

volatile.